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Advancing Infrastructure

PRODUCT DATA SHEET

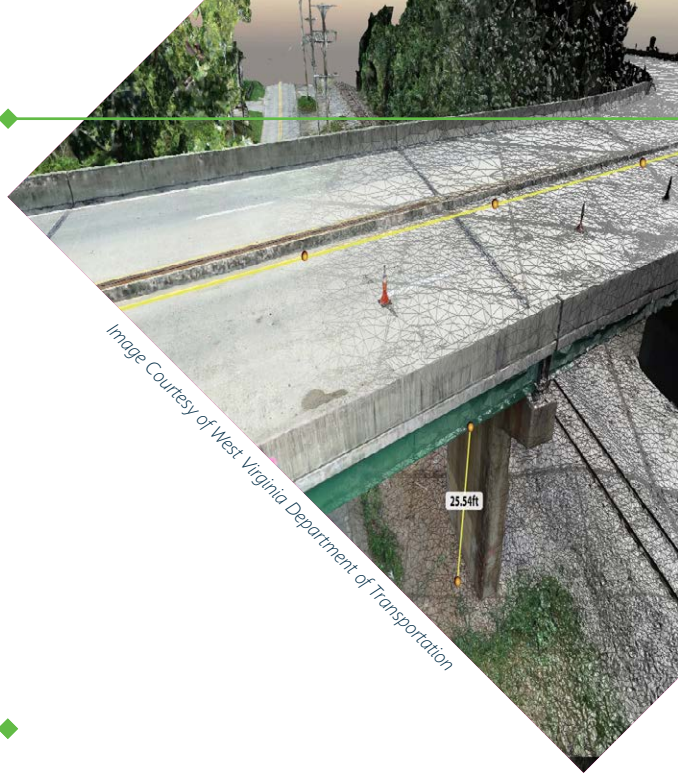


Image Courtesy of West Virginia Department of Transportation

iTwin® Capture Cloud Services

Add Real-world Insights to Your Digital Twins with Reality Modeling

iTwin Capture offers the highest fidelity and most versatile means of capturing reality to serve as the digital context for design, engineering, construction, and operations workflows.

With iTwin Capture Cloud Services, you can leverage the power of cloud computing to capture, manage, analyze, and share reality data to create a digital twin of your infrastructure.

iTwin Capture Cloud relies on four main services:

- Reality Modeling – Turns images or point clouds into meshes.
- Reality Management – Hosts and manages access rights to reality data.
- Reality Analysis – Executes automatic feature extraction from reality data.
- Reality Conversion – Converts the reality data format.

Accessible from web, mobile, or desktop clients, iTwin Capture Cloud services will offer all the benefits associated to cloud technology – high scalability, no hardware purchase or maintenance costs, and accessibility from multiple devices.

Beyond these clients, a public API is also available to allow customization or specific integration of reality data into your complex processing pipelines.

SCALABILITY AND PARALLEL COMPUTING

With iTwin Capture's Reality Modeling Service, you can import any reality data to enable various consumption workflows. The service allows you to create engineering-ready reality data – such as reality meshes, point clouds, and orthophotos – using any digital camera, scanner, or mobile mapping device.

iTwin Capture's reality mesh creation capabilities are among the best on the market, and are only limited by the image or point cloud quality you use.

The Reality Modeling Service simplifies and scales your projects, allowing anyone on your team to easily document as-is situations affordably, and with less investment of time and resources.

You can process reality meshes using iTwin Capture Console or iTwin Capture Mobile.

- iTwin Capture Console is a desktop application for instantly uploading images and point clouds. It allows ground control definition to create accurate reality meshes.
- iTwin Capture Mobile is an augmented reality capture and aided application to keep your digital twin updated by collecting and processing reality data on the fly.

CONVERT REALITY DATA

The Reality Conversion Service streamlines the process of converting reality data to ensure it fits any analysis workflow or solution.

MANAGE AND SHARE REALITY DATA

The Reality Management Service empowers you to federate all your reality data, no matter the size or type, in a connected reality data environment. This service allows you to securely manage, store, grant user access, and share large amounts of reality data to all authorized stakeholders on any device.

Working in a connected data environment improves your workflow by sharing and syncing your reality data instantly across project teams and applications, allowing everyone to receive the right information at the right time and make more informed and timely decisions.

EXTRACT INSIGHTS AND DELIVER REALITY DATA

By leveraging artificial intelligence and machine learning, the Reality Analysis Service can unlock entire value of your reality data and turn it into real-world insights for data-driven decisions.

Automated feature extraction and defect detection, combined with efficient asset inventory and feature extraction workflows, can save you hours of tedious work.

You can deliver your reality data in engineering-ready formats to be consumed in any CAD or GIS workflow, or by using iTwin Platform-based applications.

MAKING REALITY CAPTURE EASY

Every digital twin should provide users with immediate access to real-world insights across their workflows. With iTwin Capture Cloud Services, we are committed to making reality capture an everyday part of your work.

iTwin Capture Cloud Services is a comprehensive, cost-effective solution that allows you to continuously update a 4D single source of truth. It empowers reality data capture with the ability to provide field-based, insight-driven decisions.

With iTwin Capture Cloud Services, you can make data actionable so that stakeholders can receive the right information at the right time and make more informed and timely decisions throughout the lifecycle of projects.

SYSTEM REQUIREMENTS

MINIMUM: iTwin Capture Console: Windows 7/8/10, 64-bit processor, 4 GB memory, NVIDIA or AMD GPU compatible with OpenGL 3.2
iTwin Capture Mobile: iPhone/iPad with iOS 9.3 for main capabilities, iPhone/iPad 12 Pro with iOS 15 or higher for AR capabilities
BROWSER COMPATIBILITY: Edge, Chrome, Firefox

iTwin Capture Cloud Services At-A-Glance

CLIENTS AND OPEN API

- Desktop client (iTwin Capture Console) to support the most complex reality modeling projects
- AR-assisted mode in iTwin Capture Mobile to ensure robust reality data capture
- Manage reality data in a user-friendly web application
- Leverage a complete and documented set of APIs to trigger all iTwin Capture Cloud services and integrate them as components in your processing pipelines

REALITY MODELING

- Import reality data of any type (image, point cloud, video) in various formats
- Create reality meshes, orthophotos, and point clouds
- Ensure accurate geo-registration by handling RTK-GPS or ground control points
- Leverage unique parallel computing to reach unmatched processing speed

REALITY CONVERSION

- Transform point cloud data optimized for web-streaming to support downstream operations

REALITY MANAGEMENT

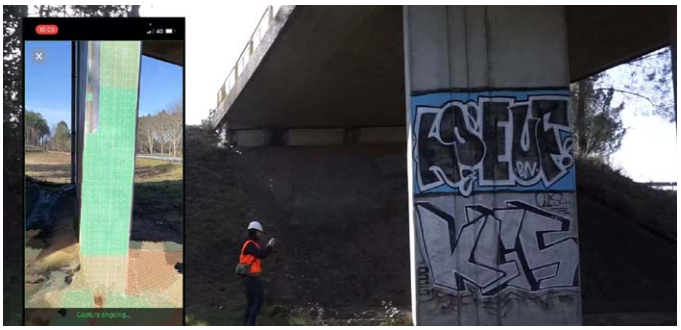
- Share images, point clouds, and meshes straight from the user interface
- Invite all project stakeholders to collaborate in single environment
- Manage access rights and levels of permission to secure the project environment

REALITY ANALYSIS

- Leverage machine learning to automatically highlight defects impacting infrastructure, such as cracks and spalls, to support inspection tasks
- Extract any asset from massive reality data into smart CAD/GIS resources

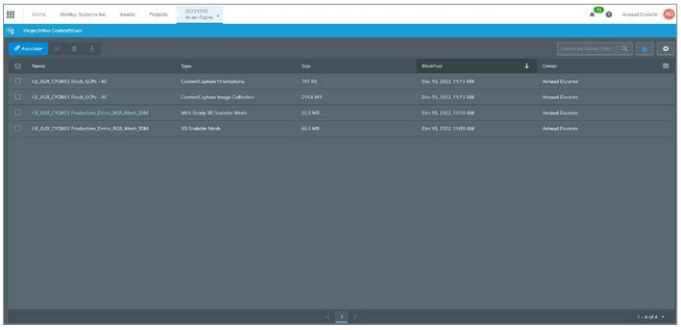
VALIDATION AND DELIVERY

- Review reality data (images, point clouds, and meshes) in a web environment for visual checks
- Verify dimensions with coordinates, length, or area measurement capabilities prior to delivery



iTwin Capture Mobile AR-assisted capture.

A reality mesh processed by iTwin Capture's Reality Modeling Service.



A web application interfacing the Reality Management Service.

Automatic defect detection to support inspection - Courtesy of West Virginia DOT.

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FIND OUT MORE AT BENTLEY.COM

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